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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/931,096	08/17/2001	Xijia Wu	11227-01 US	3652

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EXAMINER	
KOSOWSKI, ALEXANDER J	

ART UNIT	PAPER NUMBER
2125	

DATE MAILED: 12/10/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/931,096	WU ET AL.	
	Examiner	Art Unit	
	Alexander J Kosowski	2125	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 August 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *17 August 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *2/1/02*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1) Claims 1-16 are presented for examination.

IDS

2) Several references cited on the IDS filed 2/1/02 are missing or were never filed properly. These have been crossed off on the attached form PTO 1449.

Claim Rejections - 35 USC § 112

3) The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4) Claim 8 recites the limitation "the sensor" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

5) The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6) Claims 10-11 and 13 are rejected under 35 U.S.C. 102(b) as being unpatentable by Cantrell et al (U.S. Pat 6,197,130).

Referring to claim 10, Cantrell teaches a method comprising the steps of providing an initial value in dependence upon first and second inter-convertible precipitate phases of an alloy (col. 1 lines 45-59 and col. 2 lines 40-47); b) providing data indicative of thermal exposure of the alloy (col. 4 lines 5-9); c) calculating a value according to pre-determined rate equations in dependence upon the provided initial value and the provided data (col. 4 lines 23-28); d)

determining a value indicative of a current precipitate-phase composition of the alloy in dependence upon the calculated value and affecting the alloy in dependence upon a result of the step of comparing (col. 2 line 62 through col. 3 line 8).

Referring to claim 11, Cantrell teaches that the provided initial value comprises a value indicative of an initial precipitate-phase composition of the alloy (col. 3 lines 43-58).

Referring to claim 13, Cantrell teaches that the provided data is a simulated thermal exposure history of the alloy (col. 3 lines 1-8).

Claim Rejections - 35 USC § 103

7) The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8) Claims 1-8, 12, and 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cantrell et al (U.S. Pat 6,197,130), further in view of Ganyo et al (U.S. Pat 5,650,026).

Referring to claim 1, Cantrell teaches a method comprising the steps of: a) affecting the temperature of an alloy to change an amount of a first precipitate stage relative to an amount of a second precipitate phase (col. 1 lines 45-59 and col. 3 lines 47-53); b) sensing an instantaneous measurement of the alloy and providing a signal in dependence thereof (col. 4 lines 5-9); c) calculating a value indicative of current precipitate-phase composition of the alloy according to a series of predetermined rate equations and in dependence upon the provided signal (col. 4 lines 23-28); d) comparing the calculated value to a predetermined threshold value and affecting the alloy in dependence upon a result of the step of comparing, wherein the predetermined threshold

value is characteristic of an alloy having at least one of an indicated yield strength, specific conductivity and corrosion property (col. 2 line 62 through col. 3 line 8). However, Cantrell does not explicitly teach that the instantaneous measurement is a temperature of the alloy.

Ganyo teaches a method of heat treatment of an alloy whereby temperature readings of an alloy being processed are taken and used to adjust the system (col. 5 line 66 through col. 6 line 13 and col. 8 lines 55-67).

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to measure temperature in the method taught by Cantrell since it is important to determine the actual temperature of a part prior to the part being admitted to any subsequent heat treatment station and since by knowing the temperature of a part admitted to a heat treatment station, a controller can calculate the heat required to elevate a part to a desired final temperature (Ganyo, col. 1 line 63 through col. 2 line 7).

Referring to claim 2, Cantrell teaches the further steps of providing the alloy within an atmosphere for heat treatment, changing the temperature of the atmosphere according to a predetermined temperature program and waiting for the temperature of the alloy to change (col. 3 lines 11-23).

Referring to claim 3, Cantrell teaches the further steps of e) when the calculated value exceeds the predetermined threshold value, ending the predetermined temperature program (col. 3 lines 47-58).

Referring to claim 4, Cantrell teaches the steps of e) when the calculated value exceeds the predetermined threshold value, removing the alloy from the atmosphere for heat treatment (col. 3 lines 47-58).

Referring to claim 5, Cantrell teaches the steps of e) when the calculated value exceeds the predetermined threshold value, changing further the temperature of the atmosphere according to a second predetermined temperature program (col. 3 lines 10-58, whereby multiple heat treatments are performed).

Referring to claim 6, Cantrell teaches the steps of: providing the alloy within an atmosphere for heat treatment waiting for the temperature of the alloy to change (col. 3 lines 11-23).

Referring to claim 7, Cantrell teaches the steps of e) when the calculated value exceeds the predetermined threshold value, removing the alloy from the atmosphere for heat treatment (col. 3 lines 47-58).

Referring to claim 8, Cantrell teaches that the sensor provides the signal in real-time (col. 2 lines 14-15).

Referring to claim 12, Cantrell teaches the above, whereby the data is sensed in real-time (col. 2 lines 14-15). However, Cantrell does not explicitly teach that the provided data is a temperature sensed by a sensor in thermal communication with the alloy.

Ganyo teaches a method of heat treatment of an alloy whereby temperature readings of an alloy being processed are taken and used to adjust the system (col. 5 line 66 through col. 6 line 13 and col. 8 lines 55-67).

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to measure temperature in the method taught by Cantrell since it is important to determine the actual temperature of a part prior to the part being admitted to any subsequent heat treatment station and since by knowing the temperature of a part admitted to a heat treatment

station, a controller can calculate the heat required to elevate a part to a desired final temperature (Ganyo, col. 1 line 63 through col. 2 line 7).

Referring to claim 14, Cantrell teaches a system comprising: a holder for accommodating a sample of a precipitation-hardenable alloy, the alloy having first and second inter-convertible precipitate phases (col. 1 lines 45-59 and col. 2 lines 30-39); a temperature controller for affecting the temperature of the sample (col. 3 lines 10-23, wherein the alloy is heated); a sensor in communication with the sample for providing a signal in dependence upon a sensed measurement of the sample (col. 4 lines 5-9); and, a processor for executing code thereon to calculate a value in dependence upon the signal, the value indicative of a current precipitate phase composition of the sample, and for comparing the calculated value to a predetermined threshold value (col. 2 line 62 through col. 3 line 8 and col. 4 lines 13-22). However, Cantrell does not explicitly teach that the signal provided by the sensor is dependent upon a sensed temperature of the sample.

Ganyo teaches a method of heat treatment of an alloy whereby temperature readings of an alloy being processed are taken and used to adjust the system (col. 5 line 66 through col. 6 line 13 and col. 8 lines 55-67).

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to measure temperature in the method taught by Cantrell since it is important to determine the actual temperature of a part prior to the part being admitted to any subsequent heat treatment station and since by knowing the temperature of a part admitted to a heat treatment station, a controller can calculate the heat required to elevate a part to a desired final temperature (Ganyo, col. 1 line 63 through col. 2 line 7).

Referring to claim 15, Cantrell teaches that the system includes a feed back controller responsive to the processor for affecting a characteristic of the process (col. 4 lines 9-31).

Referring to claim 16, Cantrell teaches the above. However, Cantrell does not explicitly teach that the feed back controller is for affecting a temperature of the precipitation-hardenable alloy.

Ganyo teaches a method of heat treatment of an alloy whereby temperature readings of an alloy being processed are taken and used by a controller to adjust the system temperature (col. 5 line 66 through col. 6 line 13 and col. 8 lines 55-67).

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to adjust temperature using a feedback controller in the method taught by Cantrell since it is important to determine the actual temperature of a part prior to the part being admitted to any subsequent heat treatment station and since by knowing the temperature of a part admitted to a heat treatment station, a controller can calculate the heat required to elevate a part to a desired final temperature (Ganyo, col. 1 line 63 through col. 2 line 7).

9) Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cantrell, further in view of McCay et al (U.S. Pat 6,350,326).

Referring to claim 9, Cantrell teaches the above. However, Cantrell does not explicitly teach that the chemical composition of the atmosphere for heat treatment is variably controllable.

McCay teaches a feedback controlled heat treatment apparatus whereby the atmosphere for heat treatment may be filled with an inert gas controlled by a controller (col. 6 lines 32-36 and col. 15 lines 12-24).

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to variably affect the chemical composition of the atmosphere of the heat treatment apparatus taught by Cantrell since including an inert gas in the atmosphere would allow the process to be shielded (col. 6 lines 32-35), and since the use of inert gases in the treatment of metals is well known in the art.

Conclusion

10) The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Eppeland et al (U.S. pat 5,306,359) – teaches a method for heat treatment.

11) Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexander J Kosowski whose telephone number is 571-272-3744. The examiner can normally be reached on Monday through Friday, alternating Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo Picard can be reached on 571-272-3749. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306. In addition, the examiner's RightFAX number is 571-273-3744.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

Alexander J. Kosowski
Patent Examiner
Art Unit 2125

LEO PICARD
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